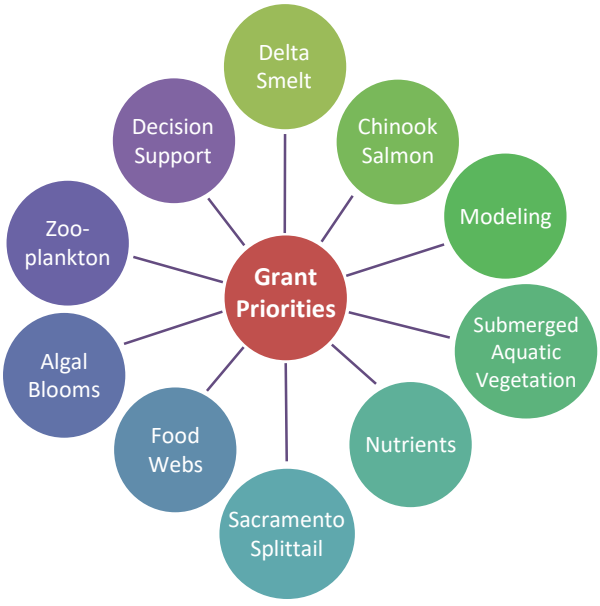
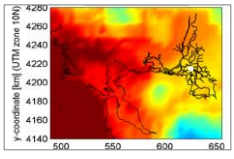
Council-funded research guides Delta management decisions

Scientific research is a critical component in establishing unbiased and authoritative knowledge directly relevant to managing the California Delta in order to protect and enhance a healthy, vibrant ecosystem, and to assure a more reliable water supply.

Since 2004, the Delta Science Program has invested more than $27 million through 48 research grants. Noted below are some of the highlights from the *2010* grant solicitation, which funded 13 research projects and resulted in more than 70 peer-reviewed papers that are helping to influence key Delta decisions.



Highlights



CLIMATE CHANGE – Developed novel computational models linking climate, water movement, and food webs. The models are currently being used in management decisions that consider current and future effects of climate change, including the Nutrient Management Strategy for the Delta.

DELTA SMELT – Established a detailed understanding of environmental limitations of Delta Smelt. The data are being used in the Delta Smelt Resiliency Strategy and predictive frameworks that help answer if and where these fish can survive under likely climate change scenarios.

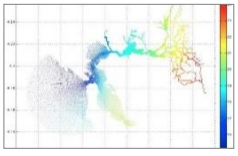
PESTICIDES – Identified data on how urban pesticide use and storm water runoff affect aquatic ecosystems in the Delta. As a result, the Department of Pesticide Regulation has initiated discussions with pesticide manufactures to identify more effective mitigation measures for these contaminants.

SALMON – Developed innovative tools that inform the Chinook Salmon Life Cycle Model, which will assist with management actions aimed at increasing survival of these fish by answering questions such as which salmon stocks are most competitive and survive the most.

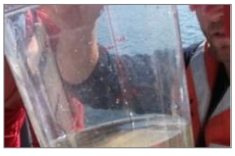
AQUATIC PLANTS – Discovered new data on how submerged vegetation can positively and negatively affect food webs in the Delta. As a result of this study, the Delta Smelt Resiliency Strategy is able to provide recommendations related to treatment of aquatic plants that benefit native fish.

Science in Action

RESTORATION – Established a new computational model to calculate economic and ecological gains and losses of converting agricultural lands into wetlands. This model is useful in moving forward with restoration in the Yolo Bypass and other wetlands in a way that benefits ecosystems without eliminating agricultural uses.



MODELING – Created a new computational tool now being used in the San Francisco Bay to manage nutrients and prevent harmful algae blooms from developing in the estuary.



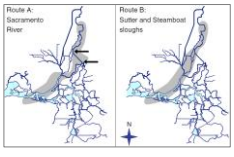
ALGAL BLOOMS – Provided managers with information needed to reduce harmful algal blooms and to promote beneficial algal blooms. As a result of this study, decision makers have necessary data (such as when to release cold water from reservoirs) to meet environmental and human health needs.

NATIVE FISH – Determined that the two distinct populations of native Sacramento splittail fish should be managed uniquely to meet their distinct needs, as opposed to the current strategy of managing them the same way.

NUTRIENTS – Advanced our understanding of how food webs are affected by nutrients (like ammonium) flowing through the Delta. This research is informing management strategies like those used at the Regional San Wastewater Treatment Plant.

SUISUN MARSH – Developed the foundation for improved management of Suisun Marsh that considers sea level rise, aiming at keeping the marsh a favorable habitat for native fish. As a result of this research, managers have a better understanding of how to manage stressors such as invasive clams.

FOOD WEBS - Determined the effects of invasive zooplankton (microscopic floating animals) in the Delta food web. The research informs the development of management strategies aimed at recovering sensitive fish species that rely on nourishing food webs.



DELTA FLOWS – Created novel analytical tools being used to improve salmon survival by informing management decisions that affect salmon route choice through the Delta. This research was used as part of the Biological Assessment to determine the effects of WaterFix on salmon in the Delta.

One-page summaries of each project are available:
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